

## REVISED LIST OF ABBREVIATIONS FOR GENERA AND SUBGENERA OF CULICIDAE (DIPTERA) AND NOTES ON GENERIC AND SUBGENERIC CHANGES

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**ABSTRACT.** Recent generic and subgeneric changes in family Culicidae are summarized and a revised and updated list of abbreviations for the currently recognized 39 genera and 135 subgenera of the family is provided.

**KEY WORDS** Culicidae, genera, subgenera, abbreviations

### INTRODUCTION

Reinert (1975) proposed 2-letter abbreviations for the 34 genera and 3-letter abbreviations for the 119 subgenera of family Culicidae recognized at that time. He indicated that "The use of short, standardized generic and subgeneric abbreviations would facilitate the recognition of each taxon and reduce printed space in tables, lists, descriptions, specimen labels, etc. Standardized abbreviations would also be an advantage in computer studies." Reinert updated the list in 1982 and 1992. Considerable changes have occurred in the number and arrangement of genera and subgenera within the family since the last update, especially in tribes Sabethini, Culicini, and Aedini and subfamily Anophelinae. These changes are given below as well as generic and subgeneric abbreviations previously used but not in current use.

Zavortink (1979) reclassified genus *Trichoprosopon* Theobald into the following 4 genera, *Johnbelkinia* Zavortink, *Shannoniana* Lane and Cerqueira, *Trichoprosopon*, and *Runchomyia* Theobald, and the latter genus with 3 subgenera (i.e., *Ctenogoeldia* Edwards, *Isostomyia* Coquillett, and *Runchomyia*). He also placed *Limamyia* Lane and Cerqueira (*Lma.*) and *Vonplessenia* Lane and Cerqueira (*Von.*) in synonymy with genus *Trichoprosopon*. Peyton et al. (1983), within genus *Wyeomyia* Theobald, used the subgeneric name *Dodecamyia* Dyar and indicated

article as recognition of the validity of the subgenus by the authors.

However, Heinemann and Belkin (1978b:365), in their collection records of the project "Mosquitoes of Middle America" stated that "most of the identifications are preliminary identifications only and in no way constitute a change in taxonomic status." Later, Judd (1996, 1998) and Harbach and Kitching (1998), in phylogenetic analyses, recognized *Dodecamyia* as a valid subgenus of *Wyeomyia*. Harbach and Peyton (1990) revalidated subgenus *Decamyia* Dyar and described the new subgenus *Caenomyiella* in genus *Wyeomyia*. Subgenus *Davismyia* Lane and Cerqueira was transferred from genus *Wyeomyia* to genus *Sabethes* Robineau-Desvoidy by Harbach and Peyton (1991a). The new subgenus *Exallomyia* of genus *Wyeomyia* was described by Harbach and Peyton (1991b). *Isostomyia* was elevated to generic rank from a subgenus of *Runchomyia* (Harbach and Peyton 1993). Judd (1998) reduced *Phoniomyia* Theobald to a subgenus of *Wyeomyia* and resurrected *Hystatomyia* Dyar as a subgenus of *Wyeomyia*. *Prosopolepis* Lutz was revalidated as a monotypic subgenus of *Wyeomyia* and abbreviated as *Prl.* by Lourenco-de-Oliveira et al. (1999). However, Heinemann and Belkin (1977b) used the abbreviation *Prs.* for *Prosopolepis* in their published collection records of the project "Mosquitoes of Middle America," but because they did not validate the subgeneric name and Lourenco-de-Oliveira et al. (1999) revalidated it as a subgenus, I propose using their abbreviation *Prl.* Harbach and Peyton (2000) described the new sabethine genus *Onirion* and proposed the abbreviation *On.*

*Phenacomyia* was described as a new subgenus of genus *Culex* Linnaeus by Harbach and Peyton (1992). Based on a cladistic analysis of the larval mouthparts (i.e., maxillae and mandibles), Navarro and Liria (2000) proposed synonymizing genus *Deinocerites* Theobald (*De.*) with genus *Culex* and reducing it to subgeneric status. Their analysis in-

This is the type-species for the subgenus *Dodecamyia* Dyar. The catalog of Knight and Stone (1977) lists *Dodecamyia* as a synonym of the subgenus *Wyeomyia* Theobald. However, Heinemann and Belkin (1978) [1978b] lists *aphobema* under the subgenus *Dodecamyia* without comment. We cannot find an earlier reference specifically removing *Dodecamyia* from the synonymy of *Wyeomyia*, but accept the listing in the above

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cluded only 1 of the 18 species of *Deinocerites* and 17 species in 7 subgenera of *Culex*. In the present paper, I have tentatively followed the proposal of Navarro and Liria (2000); however, I believe that the formal synonymy of *Deinocerites* with *Culex* is premature and should await a more extensive analysis that includes all life stages of more species of *Deinocerites*, all 24 subgenera of *Culex*, and genus *Galindomyia* Stone and Barreto.

Reinert (1993) revalidated subgenus *Molpemyia* Theobald in genus *Aedes* Meigen. *Zavortinkius* was described as a new subgenus of genus *Aedes* by Reinert (1999a). *Verrallina* Theobald was removed as a subgenus of genus *Aedes* and restored to generic rank, and 3 subgenera (i.e., *Harbachius* Reinert, new subgenus, *Neomacleaya* Theobald, and *Verrallina*) were included in it (Reinert 1999b). Reinert (2000a) established the new subgenus *Fredwardsius* in genus *Aedes*. Subgenus *Sinoaedes* Gong and Lu (*Sin.*) was transferred from genus *Aedes* and placed in synonymy with subgenus *Mattinyia* Lien of genus *Heizmannia* Ludlow by Reinert (2000b). *Ayurakitia* Thurman was removed as a subgenus of genus *Aedes* and restored to generic rank by Reinert (2000c). A new classification of the composite genus *Aedes* was proposed by Reinert (2000d), who divided it into 2 genera, *Aedes* and *Ochlerotatus* Lynch Arribalzaga. He included 22 subgenera in genus *Aedes* (*Aedes*, *Aedimorphus* Theobald, *Alanstonea* Mattingly, *Albuginosus* Reinert, *Belkinus* Reinert, *Bothaella* Reinert, *Cancraedes* Edwards, *Christophersomyia* Barraud, *Diceromyia* Theobald, *Edwardsaedes* Belkin, *Fredwardsius* Reinert, *Huaedes* Huang, *Indusius* Edwards, *Isoaedes* Reinert, *Leptosomatomyia* Theobald, *Lorrainea* Belkin, *Neomelaniconion* Newstead, *Paraedes* Edwards, *Pseudarmigeres* Stone and Knight, *Scutomyia* Theobald, *Skusea* Theobald, and *Stegomyia* Theobald), and 21 subgenera in genus *Ochlerotatus* (*Abraedes* Zavortink, *Aztecaedes* Zavortink, *Chaetocruuiomyia* Theobald, *Finlaya* Theobald, *Geoskusea* Edwards, *Gymnotetopa* Coquillett, *Halaedes* Belkin, *Howardina* Theobald, *Kenknightia* Reinert, *Kompia* Aitken, *Levua* Stone and Bohart, *Macleaya* Theobald, *Molpemyia* Theobald, *Mucidus* Theobald, *Nothoskusea* Dumbleton, *Ochlerotatus*, *Protomacleaya* Theobald, *Pseudoskusea* Theobald, *Rhinoskusea* Edwards, *Rusticoidus* Shevchenko and Prudkina, and *Zavortinkius*).

Based on a phylogenetic analysis of Anophelinae, Sallum et al. (2000) synonymized genus *Bironella* Theobald (*Bi.*) (including its 3 subgenera, *Bironella* (*Bir.*), *Brugella* Edwards (*Bru.*), and *Neobironella* Tenorio (*Nbi.*)) with genus *Anopheles* Meigen and redefined it as an informal group within subgenus *Anopheles*; subgenera *Lophopodomomyia* Antunes (*Lph.*) and *Stethomyia* Theobald (*Ste.*) were synonymized with subgenus *Anopheles* and *Stethomyia* was redefined as an informal group; and subgenera *Cellia* Theobald, *Kerteszia* Theobald,

and *Nyssorhynchus* Blanchard were recognized as monophyletic groups with no change in their subgeneric status.

Heinemann and Belkin (1977a, 1977b, 1978a, 1978b, 1979) provided the following abbreviations in their published collection records of the project "Mosquitoes of Middle America": subgenus *Myzorhynchella* Theobald (*Myz.*) of genus *Anopheles*; and subgenera *Calladimyia* Dyar (*Cal.*), *Cleobonea* Dyar (*Cle.*), *Dinomyia* Dyar (*Din.*), *Dodecemyia* Dyar (*Dod.*), *Eunicemyia* Dyar and Shannon (*Eun.*), *Janicemyia* Dyar and Shannon (*Jnc.*), *Miamyia* Dyar (*Mia.*), *Pentemyia* Dyar (*Pen.*), and *Triamyia* Dyar (*Tri.*) of genus *Wyeomyia*. None of these names have been formally revalidated (see above note under Heinemann and Belkin 1978b) and are in synonymy with other generic-level taxa. However, if these names should be validated in the future the abbreviations proposed by Heinemann and Belkin are available, except *Tri.*, which is used for *Tricholeptomomyia* (Dyar and Shannon) of genus *Tripteroides* Giles.

To avoid confusion that might result from the numerous changes listed above, a totally revised and updated list of the currently recognized 39 genera and 135 subgenera of mosquitoes and their abbreviations is provided below. Periods must be used with the generic and subgeneric abbreviations (International Code of Zoological Nomenclature, Appendix B11, 1999).

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#### ABBREVIATIONS OF GENERA OF CULICIDAE

Genus	Abbreviation
<i>Aedeomyia</i>	<i>Ad.</i>
<i>Aedes</i>	<i>Ae.</i>
<i>Anopheles</i>	<i>An.</i>
<i>Ayurakitia</i>	<i>Ay.</i>
<i>Armigeres</i>	<i>Ar.</i>
<i>Chagasia</i>	<i>Ch.</i>
<i>Coquillettidia</i>	<i>Cq.</i>
<i>Culex</i>	<i>Cx.</i>
<i>Culiseta</i>	<i>Cs.</i>
<i>Eretmapodites</i>	<i>Er.</i>
<i>Ficalbia</i>	<i>Fi.</i>
<i>Galindomyia</i>	<i>Ga.</i>
<i>Haemagogus</i>	<i>Hg.</i>
<i>Heizmannia</i>	<i>Hz.</i>
<i>Hodgesia</i>	<i>Ho.</i>
<i>Isostomyia</i>	<i>Is.</i>
<i>Johnbelkinia</i>	<i>Jb.</i>
<i>Limatus</i>	<i>Li.</i>
<i>Malaya</i>	<i>Ml.</i>
<i>Mansonia</i>	<i>Ma.</i>
<i>Maorigoeldia</i>	<i>Mg.</i>
<i>Mimomyia</i>	<i>Mi.</i>
<i>Ochlerotatus</i>	<i>Oc.</i>
<i>Onirion</i>	<i>On.</i>
<i>Opifex</i>	<i>Op.</i>
<i>Orthopodomomyia</i>	<i>Or.</i>
<i>Psorophora</i>	<i>Ps.</i>
<i>Runchomyia</i>	<i>Ru.</i>
<i>Sabethes</i>	<i>Sa.</i>

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**ABBREVIATIONS OF GENERA OF CULICIDAE**

Continued

Genus	Abbreviation
<i>Shannoniana</i>	<i>Sh.</i>
<i>Topomyia</i>	<i>To.</i>
<i>Toxorhynchites</i>	<i>Tx.</i>
<i>Trichoprosopon</i>	<i>Tr.</i>
<i>Tripteroides</i>	<i>Tp.</i>
<i>Udaya</i>	<i>Ud.</i>
<i>Uranotaenia</i>	<i>Ur.</i>
<i>Verrallina</i>	<i>Ve.</i>
<i>Wyeomyia</i>	<i>Wy.</i>
<i>Zeugomyia</i>	<i>Ze.</i>

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**ABBREVIATIONS OF SUBGENERA OF CULICIDAE**

Subgenus	Abbreviation
Genus <i>Aedeomyia</i>	
<i>Aedeomyia</i>	<i>Ady.</i>
<i>Lepiothauma</i>	<i>Lpi.</i>
Genus <i>Aedes</i>	
<i>Aedes</i>	<i>Aed.</i>
<i>Aedimorphus</i>	<i>Adm.</i>
<i>Alanstonea</i>	<i>Ala.</i>
<i>Albuginosus</i>	<i>Alb.</i>
<i>Belkinus</i>	<i>Blk.</i>
<i>Bothaella</i>	<i>Bot.</i>
<i>Cancraedes</i>	<i>Can.</i>
<i>Christophersiomyia</i>	<i>Chr.</i>
<i>Diceromyia</i>	<i>Dic.</i>
<i>Edwardsaedes</i>	<i>Edw.</i>
<i>Fredwardsius</i>	<i>Fre.</i>
<i>Huaedes</i>	<i>Hua.</i>
<i>Indusius</i>	<i>Ind.</i>
<i>Isoaedes</i>	<i>Isa.</i>
<i>Leptosomatomyia</i>	<i>Lep.</i>
<i>Lorrainea</i>	<i>Lor.</i>
<i>Neomelaniconion</i>	<i>Neo.</i>
<i>Paraedes</i>	<i>Par.</i>
<i>Pseudarmigeres</i>	<i>Psa.</i>
<i>Scutomyia</i>	<i>Scu.</i>
<i>Skusea</i>	<i>Sku.</i>
<i>Stegomyia</i>	<i>Stg.</i>
Genus <i>Anopheles</i>	
<i>Anopheles</i>	<i>Ano.</i>
<i>Cellia</i>	<i>Cel.</i>
<i>Kerteszia</i>	<i>Ker.</i>
<i>Nyssorhynchus</i>	<i>Nys.</i>
Genus <i>Armigeres</i>	
<i>Armigeres</i>	<i>Arm.</i>
<i>Leicesteria</i>	<i>Lei.</i>
Genus <i>Coquillettidia</i>	
<i>Austromansonia</i>	<i>Aus.</i>
<i>Coquillettidia</i>	<i>Coq.</i>
<i>Rhynchoaenia</i>	<i>Rhy.</i>
Genus <i>Culex</i>	
<i>Acalleoemyia</i>	<i>Aca.</i>
<i>Acallyntrum</i>	<i>Acl.</i>
<i>Aedinus</i>	<i>Ads.</i>
<i>Afroculex</i>	<i>Afc.</i>
<i>Allimanta</i>	<i>Alm.</i>

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**ABBREVIATIONS OF SUBGENERA OF CULICIDAE**

Continued

Subgenus	Abbreviation
<i>Anoedioporpa</i>	<i>And.</i>
<i>Barraudius</i>	<i>Bar.</i>
<i>Belkinomyia</i>	<i>Bel.</i>
<i>Carrollia</i>	<i>Car.</i>
<i>Culex</i>	<i>Cux.</i>
<i>Culiciomyia</i>	<i>Cui.</i>
<i>Deinocerites</i>	<i>Dei.</i>
<i>Eumelanomyia</i>	<i>Eum.</i>
<i>Kitzmilleria</i>	<i>Kit.</i>
<i>Lasiosiphon</i>	<i>Las.</i>
<i>Lophoceraomyia</i>	<i>Lop.</i>
<i>Lutzia</i>	<i>Lut.</i>
<i>Maillotia</i>	<i>Mai.</i>
<i>Melanoconion</i>	<i>Mel.</i>
<i>Microaedes</i>	<i>Mca.</i>
<i>Microculex</i>	<i>Mcx.</i>
<i>Neoculex</i>	<i>Ncx.</i>
<i>Phenacomyia</i>	<i>Phc.</i>
<i>Thaiomyia</i>	<i>Tha.</i>
<i>Tinolestes</i>	<i>Tin.</i>
Genus <i>Culiseta</i>	
<i>Allotheobaldia</i>	<i>All.</i>
<i>Austrotheobaldia</i>	<i>Aut.</i>
<i>Climacura</i>	<i>Cli.</i>
<i>Culicella</i>	<i>Cuc.</i>
<i>Culiseta</i>	<i>Cus.</i>
<i>Neotheobaldia</i>	<i>Net.</i>
<i>Theomyia</i>	<i>Thm.</i>
Genus <i>Haemagogus</i>	
<i>Conopostegus</i>	<i>Con.</i>
<i>Haemagogus</i>	<i>Hag.</i>
Genus <i>Heizmannia</i>	
<i>Heizmannia</i>	<i>Hez.</i>
<i>Mattinglyia</i>	<i>Mat.</i>
Genus <i>Mansonia</i>	
<i>Mansonia</i>	<i>Man.</i>
<i>Mansonioides</i>	<i>Mnd.</i>
Genus <i>Mimomyia</i>	
<i>Etorleptomyia</i>	<i>Eto.</i>
<i>Ingramia</i>	<i>Ing.</i>
<i>Mimomyia</i>	<i>Mim.</i>
Genus <i>Ochlerotatus</i>	
<i>Abraedes</i>	<i>Abr.</i>
<i>Aztecaedes</i>	<i>Azt.</i>
<i>Chaetocruuiomyia</i>	<i>Cha.</i>
<i>Finlaya</i>	<i>Fin.</i>
<i>Geoskusea</i>	<i>Geo.</i>
<i>Gymmetopa</i>	<i>Gym.</i>
<i>Halaedes</i>	<i>Hal.</i>
<i>Howardina</i>	<i>How.</i>
<i>Kenknighia</i>	<i>Ken.</i>
<i>Kompia</i>	<i>Kom.</i>
<i>Levua</i>	<i>Lev.</i>
<i>Macleaya</i>	<i>Mac.</i>
<i>Molpemyia</i>	<i>Mol.</i>
<i>Mucidus</i>	<i>Muc.</i>
<i>Nothoskusea</i>	<i>Not.</i>
<i>Ochlerotatus</i>	<i>Och.</i>

**ABBREVIATIONS OF SUBGENERA OF  
CULICIDAE**  
Continued

Subgenus	Abbreviation
<i>Protomacleaya</i>	<i>Pro.</i>
<i>Pseudoskusea</i>	<i>Psk.</i>
<i>Rhinuskusea</i>	<i>Rhi.</i>
<i>Rusticoidus</i>	<i>Rus.</i>
<i>Zavortinkius</i>	<i>Zav.</i>
Genus <i>Psorophora</i>	
<i>Grabhamia</i>	<i>Gra.</i>
<i>Janthinosoma</i>	<i>Jan.</i>
<i>Psorophora</i>	<i>Pso.</i>
Genus <i>Runchomyia</i>	
<i>Ctenogoeldia</i>	<i>Cte.</i>
<i>Runchomyia</i>	<i>Run.</i>
Genus <i>Sabethes</i>	
<i>Davismyia</i>	<i>Dav.</i>
<i>Peytonulus</i>	<i>Pey.</i>
<i>Sabethes</i>	<i>Sab.</i>
<i>Sabethinus</i>	<i>Sbn.</i>
<i>Sabethoides</i>	<i>Sbo.</i>
Genus <i>Topomyia</i>	
<i>Suaymyia</i>	<i>Sua.</i>
<i>Topomyia</i>	<i>Top.</i>
Genus <i>Toxorhynchites</i>	
<i>Afrorhynchus</i>	<i>Afr.</i>
<i>Ankylorhynchus</i>	<i>Ank.</i>
<i>Lynchiella</i>	<i>Lyn.</i>
<i>Toxorhynchites</i>	<i>Tox.</i>
Genus <i>Tripteroides</i>	
<i>Polyepidomyia</i>	<i>Pol.</i>
<i>Rachionotomyia</i>	<i>Rah.</i>
<i>Rachisoura</i>	<i>Rac.</i>
<i>Tricholeptomyia</i>	<i>Tri.</i>
<i>Tripteroides</i>	<i>Trp.</i>
Genus <i>Uranotaenia</i>	
<i>Pseudoficalbia</i>	<i>Pfc.</i>
<i>Uranotaenia</i>	<i>Ura.</i>
Genus <i>Verrallina</i>	
<i>Harbachius</i>	<i>Har.</i>
<i>Neomacleaya</i>	<i>Nma.</i>
<i>Verrallina</i>	<i>Ver.</i>
Genus <i>Wyeomyia</i>	
<i>Antunesmyia</i>	<i>Ant.</i>
<i>Caenomyiella</i>	<i>Ca.</i>
<i>Cruzmyia</i>	<i>Cru.</i>
<i>Decamyia</i>	<i>Dec.</i>
<i>Dendromyia</i>	<i>Den.</i>
<i>Dodecamyia</i>	<i>Dod.</i>
<i>Exallomyia</i>	<i>Exm.</i>
<i>Hystatomyia</i>	<i>Hys.</i>
<i>Menolepis</i>	<i>Men.</i>
<i>Nunezia</i>	<i>Nuz.</i>
<i>Phoniomyia</i>	<i>Pho.</i>
<i>Prosopolepis</i>	<i>Prl.</i>
<i>Wyeomyia</i>	<i>Wyo.</i>
<i>Zinzala</i>	<i>Zin.</i>

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